

$$(1) y = \cos \sqrt{1-x^2}$$

$$y = \cos \sqrt{1-x^2} = \cos (1-x^2)^{\frac{1}{2}}$$

$$y' = -\sin (1-x^2)^{\frac{1}{2}} \times \frac{-2x}{2\sqrt{1-x^2}} = \frac{x}{\sqrt{1-x^2}} \sin \sqrt{1-x^2}$$

$$\therefore y' = \frac{x}{\sqrt{1-x^2}} \sin \sqrt{1-x^2}$$

$$(2) y = \cos(\sin x)$$

$$y' = -\sin(\sin x) \cos x$$

$$\therefore y' = -(\cos x) \sin(\sin x)$$

$$(3) y = \frac{\ln x}{e^x}$$

$$y = \ln x \cdot e^{-x}$$

$$y' = \frac{1}{x} e^{-x} - \ln x e^{-x} = \left(\frac{1}{x} - \ln x\right) e^{-x} \therefore y' = \left(\frac{1}{x} - \ln x\right) e^{-x}$$